

REMARKS

Claims 103-123 are pending in this application. Claims 116-120 were allowed. Claims 109 and 115 were objected to. Claims 103-108, 110-115 and 121-123 were rejected.

Allowed Claims

Applicants thank the Examiner for allowing claims 116-120

Claims Objected To

Claims 109 and 115 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 109 and 115 have been rewritten in independent form.

Claim Rejections under 35 U.S.C. § 103

Claims 103-108, 110-115, and 121-123 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,768,913 to Molnar et al. (hereinafter "Molnar") in view of U.S. Patent 5,130,715 to Yanagisawa (hereinafter "Yanagisawa"). This rejection is respectfully traversed.

To establish a prima facie case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants respectfully submit that a prima facie case of obviousness has not been established regarding claims 103-108, 110-115, and 121-123 because the prior art cited does not teach or suggest all the claim limitations. Specifically, the cited prior art does not disclose or suggest the limitation "maintaining a communication channel between a first station and a second station using the one or more tracking beams" as found in Applicants' invention.

Molnar discloses a method and apparatus for performing beam searching in a radio communications system. (Title) A base station uses a fixed beam phased array antenna which employs a first set of beams and associated hardware for conducting communication with a set of mobile terminals within a radio communications network, and employs a second set of beam and associated hardware for searching the radio communication cell for the presence of candidate beams which should be added to the first set of beams. (Col. 3, lines 45-53) The antenna may also be an adaptive phased array antenna. (Col. 4, line 32) The use of an adaptive beamforming processor allows the base station to selectively direct only the required number of beams toward the target terminals. (Col. 11, lines 44-46) Only one searcher beam is used, or at least a smaller subset of searcher beams is used. The single searcher beam is steered over a range of orientations. At each orientation, the base station measures the signal strength and/or quality of the searcher beam and from this information determines whether that orientation should be allocated a decoder beam. (Col. 11, lines 50-58) The decoder beams do not track the mobile station, rather, the mobile station moves from beam to beam. (Fig. 7).

Molnar does not disclose all the elements of Applicants' invention. Specifically, Molnar does not teach "receiving a first signal from the second station while searching for one or more additional signals using the one or more search beams". In the Final Office Action the Examiner also states that Molnar does not teach this limitation.

The Examiner states "Molnar teaches a method of communication (figure 7 and its description), comprising: forming a multiple beam pattern comprising one or more beams and one or more search beams; and maintaining a communication channel between a first station and a second station using the one or more beams including receiving a first signal from the second station (780) while searching for one or more additional signal using the one or more search beam (col. 11, line 40-col. 12, line 11, searching S beam). Molnar fails to teach the tracking beam. Yanagisawa teaches the tracking beam" Applicants respectfully submit that Yanagisawa does not teach or suggest "maintaining a communication channel between a first station and a second station using the one or more tracking beams" for the reasons given below.

Yanagisawa discloses a method of managing beams transmitted and received by a plurality of phased array antennas. (Abstract) An object of Yanagisawa is to provide a beam management method which enables simultaneous searching and tracking operations to be performed by respective PAAs to obtain excellent radar performance. (Col. 2, lines 37-40) In a tracking mode, dividing targets tracked by the phased array antenna apparatuses to a plurality of groups on the basis of the pulse repetition rate, and then calculating, for the respective divided groups, transmission timings of tracking pulses to be sent from the phased array antenna apparatuses using ranges of the targets belonging to the respective groups so that one phased array antenna apparatus does not transmit the tracking pulse at the time when another phased array antenna apparatus is in a receiving operation. (Col. 2, lines 54-64)

Applicants submit that Yanagisawa also does not teach or disclose "maintaining a communication channel between a first station and a second station using the one or more tracking beams" because Yanagisawa does not communicate with the targets tracked by the radar system. Yanagisawa discloses a method for reducing interference by conducting radar target search and tracking operations to avoid interference in the phased array antennas. In addition, Applicants note that the Examiner has provided no specific citation, effectively citing the Yanagisawa in its entirety. Despite diligent study of the Yanagisawa reference, Applicants are unable to find any teaching or suggestion of "maintaining a communication channel between a first station and a second station using the one or more tracking beams" found in claim 103. Applicants submit that Yanagisawa does not teach or suggest the stated limitation.

In addition, there is no motivation to combine the Molnar and Yanagisawa references. Molnar is specifically directed to mobile communications, while Yanagisawa is directed to a phased array radar system. Combining Molnar and Yanagisawa would result in a system that utilizes the method of Molnar with the radar system of Yanagisawa. Under this combination, the mobile stations would be tracked through the system but would not maintain a communication channel.

Claims 104-108 are each allowable as depending directly from an allowable independent claim.

Claim 110 is allowable for the same reasons given above for claim 103.

Claim 111 is allowable as depending directly from an allowable independent claim.

Claim 112 is allowable as depending directly from an allowable independent claim.

Claim 113 is allowable as depending directly from an allowable independent claim.

Claim 114 is allowable as depending directly from an allowable independent claim.

Claim 115 is allowable as depending directly from an allowable independent claim.

Claim 121 is allowable for the same reasons given above for claim 103.

Claim 122 is allowable for the same reasons given above for claim 103.

Claim 123 is allowable for the same reasons given above for claim 103.

REQUEST FOR ALLOWANCE

In view of the foregoing, Applicants respectfully submit that all pending claims in the present invention are in a condition for allowance, which is earnestly solicited. Should any issues remain unresolved, the Examiner is encouraged to telephone the undersigned at the number provided below.

Respectfully submitted,

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